

A PHOTOGRAPHIC PRIMER OF VARIANTS OF *SARRACENIA RUBRA* WALT.

by Donald E. Schnell

As was the case in the previous two editions of this primer series, text remarks must be kept brief, an especially difficult task in this very controversial species. Most regular CPN readers and students of *Sarracenia*s are well aware of the problems of taxonomy of *Sarracenia rubra*. A selected bibliography is appended and readers are encouraged to read as many of these papers as available for details and still further important references. (Reprints of the author's papers cited are still available in limited quantities.) Throughout this discussion, the author's nomenclature will be used; it is becoming more widely and generally accepted (primarily references 5 and 8 with additional documentation in 6 and 7).

However, the other systems of nomenclature must also be studied and considered, and all papers present important concepts and insights. Wherry (9) first declared one of the *S. rubra*s a separate species (*S. jonesii*), but was later content with subspecies status (10). Bell (1) thought the *jonesii* plants were but a variety and somewhat extended the putative range; he recognized no other infraspecies. McDaniel (4) felt that there were no significant taxonomic differences at all. The Cases (2, 3) however preferred to split *S. rubra* into three separate species and one subspecies. Range maps can be found in references 1, 2, 3, 4 and 5, each drawn with the author's taxonomic intentions in mind. The maps in 3, 4 and 5 are quite similar.

The numbers preceding the paragraphs below correspond to the figure numbers.

1) Flower of *S. rubra* ssp. *rubra*, quite representative of all the flowers in different subspecies, the only significant difference being in size in some populations. Note the red petals (may be pale red to maroon), reflexed sepals in older flowers. The fragrance of all ssp. is uni-

formly sweet or pleasant. The undersides of the petals in most plants of any ssp. is tan to tan-green in color and often has a linear red streak characteristic of the species.

2) *S. rubra* ssp. *rubra*, eastern North Carolina. The range of this ssp. is the eastern Carolinas extending inland to the sandhill counties. Within the species as a whole, there is considerable seasonal pleomorphism of developing pitchers, early spring pitchers tending to be small to etiolated with many curved forms having prominent ala. This example is quite small although flowering size, has early spring pitchers and grows in a less than ideal habitat that dries during the summer. Plants in such areas remain more juvenile.

3) *S. rubra* ssp. *rubra*, Lexington Co., SC. This example of the same ssp. as in Fig. 2 is growing in a prime habitat: an open, sunny area in sandy soil and in a large seep that is constantly wet. Note the very robust pitchers that approach other ssp. in Fig. 4 and 5 in character. One of the problems in studying the species is the wide variation due to local factors, variations that tend to be neutralized in transplant and cultivation experiments. Also, the differences between ssp. in *S. rubra* are not at all sharply discontinuous, especially when considering differences between recognized *Sarracenia* species. Many individuals of one *S. rubra* ssp. can look very much like to identical to a few individuals of another ssp. in disjunct ranges perhaps hundreds of kilometers distant.

4) *S. rubra* ssp. *jonesii* has a range limited to certain mountain counties in western NC and SC (see range maps in various references as mentioned above). Again, small ecologic variants of the ssp. or early spring pitchers have led some authors to believe that ssp. *rubra* and ssp. *jonesii* grow together, testimony to the confusion



1) Flowers of *S. rubra* ssp. *rubra*, typical of the entire species, the only significant variation being somewhat larger size in larger subspecies. Note deep red petals, recurved sepals in mature flowers. Fragrance is identically sweet or pleasant.



2) *S. rubra* ssp. *rubra*, early spring pitchers in eastern North Carolina. Note relatively smaller size of these early season pitchers in a less than ideal habitat that will dry during the summer.



3) *S. rubra* ssp. *rubra*, summer pitchers in Lexington Co., SC. Plants in this open, sunny constantly wet seep area are more robust.



4) *S. rubra* ssp. *jonesii*, mature pitchers. These are taller than ssp. *rubra* with wider tops but narrowing rapidly toward the pitcher base.



5) *S. rubra* ssp. *gulfensis* in central west Florida panhandle. While morphologically similar to Fig. 4, the pitcher top is relatively less wide, and of course the populations are widely disjunct.



6) *S. rubra* ssp. *alabamensis*. Limited (so far) to three counties just north of Montgomery, AL, the ssp. has a stockier, more robust pitcher with large hoods having undulate margins.



7) *S. rubra* ssp. *wherryi*. Morphologically similar to Fig. 6, but disjunct and in all respects uniformly smaller in proportions.



8) *S. rubra* subspecies, moderately mature pitchers in comparison photo. A) ssp. *rubra*, B) ssp. *gulfensis*, C) ssp. *jonesii*, D) ssp. *wherryi*, E) ssp. *alabamensis*. (Plants in cultivation.)

caused by seasonal and local morphologic variations in pitchers. Generally, the pitchers are quite tall in mature plants (see author's references for actual measurements) with a widely expanded pitcher mouth that narrows rapidly toward the base. The lid is well developed with a more prominent column than in *ssp. rubra*, and the upper portion of a mature, large pitcher has somewhat of a belly-like bulge when viewed from the side.

5) *S. rubra* *ssp. gulfensis*, limited to a small range in central western Florida panhandle where it is disjunct from other *S. rubra* spp. Superficially similar in appearance to *ssp. jonesii*, the top is less wide, narrows less rapidly towards the base, and the profile bulge in the upper pitcher is absent to slight. Again, the presence of small individuals, often in less than ideal habitat has led some workers to feel that the *ssp.* is identical to *ssp. rubra*. An additional factor to consider in this and the other Gulf coastal spp. is the problem of hybridization and backcrossing with other *Sarracenia* species. Considerable experience and insight may be required to sort these out in the field!

6) *S. rubra* *ssp. alabamensis* so far seems to be limited to three counties located just north of Montgomery, AL. The pitcher proportions and contour of this *ssp.* and the next seem relatively more different as a small group than the three preceding spp. The pitcher is stockier in appearance although the plants grow nearly as tall as *ssp. jonesii*. The top is wider and narrows very gradually to the base in mature summer pitchers, although spring pitchers are very similar to other spp. The very large hood is the most markedly undulated (wavy) on the margins of all. The pitcher also tends to a more pale green background color in moderate light as compared to the tan-green color of the preceding spp., although in full light this is less apparent. A tendency to fenestrations (alveolae, light windows, etc.) is more obvious in this *ssp.* than others, although by no means are they clear-cut or as obvious as some other

Sarracenia species. I feel they may seem more apparent due to the paler background color. Similar alveolae can be seen in the anthocyanin free variant of *S. rubra* *ssp. jonesii* (all yellow-green pitchers, yellow flowers) which have been found in two locations so far (5).

7) *S. rubra* *ssp. wherryi*, the last *ssp.* I recognize, is disjunct in extreme southern Alabama but north of Mobile Bay, particularly in Baldwin and Washington Cos. Here, the *ssp.* occurs with other species of *Sarracenia* (no other species have been found yet occurring with *ssp. alabamensis* above) and one must be cautious about hybrids, as in *ssp. gulfensis* mentioned in 5 above. The pitcher appears similarly proportioned to *ssp. alabamensis* but overall measurements are shorter, slightly narrower, and there is more red pigment on the average in most pitchers.

8) Finally, we come to a comparison photo of the pitchers of all five subspecies made from cultivated pitchers. The pitchers are more mature than the very pleomorphic, often non-specific spring ones, being early summer, but not as mature as full summer pitchers illustrated in previous photos. This middle stage is purposefully shown here to complete the spectrum. While it illustrates the differences between spp. fairly clearly, it also illustrates a stage when many field observations may be made in late spring to early summer. The letter keys are given in the legend.

This has been the most difficult of the primers to present in our space limitation because here in *Sarracenia rubra* the differences felt to be present are based more on degree of a character manifestation than on a simple presence/absence factor as has been the case with most of the variants in the preceding two primers. I would reemphasize that in the case of *S. rubra* especially, one should consult at least some of the technical literature where important details, additional characters and measurements are presented along with more illustrations.

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calculate the prodigious numbers of small insects trapped by one large bushy plant. He placed small bits of beef on some experimental plants and "in some cases" the pieces disappeared. He further observed that trapped insects lived but a short period of time although often held by as few as one to four hairs. So, you folks living near good patches of *Proboscidaea* look into this and let us know. At worst, you could end up with some interesting pickles.

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